U.S. Geological Survey Capabilities in Relation to Response Efforts in Flint, Michigan

The USGS has several capabilities that could be utilized in the Federal response to the water contamination incident in Flint, MI. The USGS, through its Water Science Center in Lansing, MI, has previously contacted partners at the State of Michigan Department of Environmental Quality and the City of Flint to discuss USGS capabilities. To date, the USGS has received limited feedback from local partners in the region.

It should be noted that these capabilities do not have base funding, and would need to be funded via reimbursable agreements. The USGS has already expended over $1M in discretionary spending to cover extraordinary expenses with data collection and analysis for the ongoing flooding in the Mississippi Valley and the January 2016 Blizzard/Nor'easter in the Mid-Atlantic and Northeast. The traditional spring snowmelt/flood season and summer hurricane season invariably leads to the necessity for discretionary spending, and there could be significant challenges for the USGS in covering extraordinary expenses for the remainder of FY16. The USGS is investigating potential funding opportunities through local cooperative agreements in the affected region. The USGS POC in Michigan, Ralph Haefner, Deputy Center Director for the Water Science Center in Lansing, MI, will lead efforts to identify alternative funding mechanisms.

Below is a listing of capabilities that USGS could bring to bear. Also below are technical points of contact in the USGS, based on area of expertise.

1. Geochemical understanding of source water: The USGS has significant expertise and modeling capabilities in the geochemical composition of source water for the municipal water supply in Flint. USGS scientists could perform analysis of geochemical composition and provide advice and consultation to municipal planners.
2. Water availability: The USGS Water Science Center in Michigan has performed numerous previous studies on water availability in the region and could perform new studies on the availability and sustainability of new source water for the municipal water supply in Flint, should the decision be made to switch source water.
3. Sample collection and analysis: The USGS has significant capability to collect and analyze samples for composition and contaminants in the current source water and delivered municipal water in Flint.
4. Geophysical analysis of pipe systems: The USGS has no significant capability to determine source regions of lead in the municipal piping system in Flint. Geophysical analysis would be limited based on the composition of the piping system (iron, plastic, wood, etc). This type of activity is likely much more efficiently handled by the private sector, and there are numerous pipeline inspection companies that perform this type of analysis to municipalities across the country

5. Microbiology: The USGS Water Science Center in Michigan and Ohio has a team of biologists who are experienced in characterizing microbial communities in the environment, including biofilms on pipes and other infrastructure. This area of research could focus on microbiological communities and their response to changes in water sources, disinfection through chlorination or other processes, and the distribution and extent of Legionella (an outbreak of Legionnaire's disease was documented in Flint last summer; however, at this time, there are no science-based relations to the lead issues.)

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